JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY
HYDERABAD

B.TECH. ELECTRONICS AND INSTRUMENTATION ENGINEERING

III YEAR I SEMESTER
COURSE STRUCTURE

CODE	SUBJECT	T	P	C
	Management Science	4+1*	-	4
	Computer Organization	4+1*	-	4
	Control Systems	4+1*	-	4
	Electronic Circuit Analysis	4+1*	-	4
	Industrial Instrumentation	4+1*	-	4
	Process Control Instrumentation	4+1*	-	4
	Process Control Lab.	-	3	2
	Advanced English Communication Skills Lab	-	3	2
	TOTAL	**30**	**6**	**28**

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	4+1*	**0**	**4**

MANAGEMENT SCIENCE

Unit I: ***Introduction to Management*****:** Concepts of Management and organization- Nature and Importance of Management, Functions of Management, Taylor's Scientific Management Theory, Fayol's Principles of Management, Maslow's Theory of Human Needs, Douglas McGregor's Theory X and Theory Y, Herzberg's Two-Factor Theory of Motivation, Systems Approach to Management, Leadership Styles, Social responsibilities of Management.

Unit II: ***Designing Organisational Structures*****:** Basic concepts related to Organisation - Departmentation and Decentralisation, Types of mechanistic and organic structures of organisation (Line organization, Line and staff organization, functional organization, Committee organization, matrix organization, Virtual Organisation, Cellular Organisation, team structure, boundaryless organization, inverted pyramid structure, lean and flat organization structure) and their merits, demerits and suitability.

Unit III: ***Operations Management*****:** Principles and Types of Plant Layout-Methods of production (Job, batch and Mass Production), Work Study -Basic procedure involved in Method Study and Work Measurement-Statistical Quality Control: $\overline{X}$ chart, R chart, *c* chart, *p* chart, (simple Problems), Acceptance Sampling, Deming's contribution to quality.

Unit IV: ***A) Materials Management*****:** Objectives, Need for Inventory control, EOQ, ABC Analysis, Purchase Procedure, Stores Management and Stores Records - Supply Chain Management

B) Marketing**:** Functions of Marketing, Marketing Mix, Marketing Strategies based on Product Life Cycle., Channels of distribution.

Unit V: ***Human Resources Management (HRM):*** Concepts of HRM, HRD and Personnel Management and Industrial Relations (PMIR), HRM vs. PMIR, Basic functions of HR Manager: Manpower planning, Recruitment, Selection, Training and Development, Placement, Wage and Salary Administration, Promotion, Transfer, Separation, Performance Appraisal, Grievance Handling and Welfare Administration, Job Evaluation and Merit Rating.

Unit VI: ***Project Management (PERT/CPM)*****:** Network Analysis, Programme Evaluation and Review Technique (PERT), Critical Path Method (CPM), Identifying critical path, Probability of Completing the project within given time, Project Cost Analysis, Project Crashing. (simple problems)

Unit VII: ***Strategic Management*****:** Mission, Goals, Objectives, Policy, Strategy, Programmes, Elements of Corporate Planning Process, Environmental Scanning, SWOT Analysis, Steps in Strategy Formulation and Implementation, Generic Strategy alternatives.

Unit VIII: ***Contemporary Management Practices*****:** Basic concepts of Just-In-Time (JIT) System, Total Quality Management (TQM), Six sigma and Capability Maturity Model (CMM) Levels, Value Chain Analysis,Enterprise Resource Planning (ERP), Performance Management, Business Process outsourcing (BPO), Business Process Re-engineering and Bench Marking, Balanced Score Card.

Text Book:

1. Aryasri: *Management Science*, TMH, New Delhi.

Reference Books:

1. Kotler Philip & Keller Kevin Lane: Marketing Mangement 12/e, PHI, 2007
2. Koontz & Weihrich: *Essentials of Management*, 6/e, TMH, 2007
3. Thomas N.Duening & John M.Ivancevich *Management—Principles and Guidelines,* Biztantra,2007.
4. Kanishka Bedi, *Production and Operations Management*, Oxford University Press, 2007.
5. Memoria & S.V.Ganker, *Personnel Management*, Himalaya, 25/e, 2007

6. Schermerhorn: *Management*, Wiley, 2007.
7. Parnell: Strategic Management, Biztantra,20073.
8. L.S.Srinath: PERT/CPM,Affiliated East-West Press, 2007.

Pre-requisites: Managerial Economics

***Objective*:** To familiarize with the process of management and to provide basic insights into select contemporary management practices.

Codes/Tables: Normal Distribution Function Table need to be permitted into the examination Hall.

Question Paper Pattern: 5 Questions to be answered out of 8 questions.
Each question should not have more than 3 bits.
Unit VIII will have only short questions, not essay questions.

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	4+1*	**0**	**4**

COMPUTER ORGANIZATION

UNIT I :

BASIC STRUCTURE OF COMPUTERS : Computer Types, Functional unit, Basic OPERATIONAL concepts, Bus structures, Software, Performance, multiprocessors and multi computers. Data Representation. Fixed Point Representation. Floating – Point Representation. Error Detection codes.

UNIT II :

REGISTER TRANSFER LANGUAGE AND MICROOPERATIONS : Register Transfer language.Register Transfer Bus and memory transfers, Arithmetic Mircrooperatiaons, logic micro operations, shift micro operations, Arithmetic logic shift unit. Instruction codes. Computer Registers Computer instructions – Instruction cycle.

Memory – Reference Instructions. Input – Output and Interrupt. STACK organization. Instruction formats. Addressing modes. DATA Transfer and manipulation. Program control. Reduced Instruction set computer.

UNIT III :

MICRO PROGRAMMED CONTROL : Control memory, Address sequencing, microprogram example, design of control unit Hard wired control. Microprogrammed control

UNIT IV :

COMPUTER ARITHMETIC : Addition and subtraction, multiplication Algorithms, Division Algorithms, Floating – point Arithmetic operations. Decimal Arithmetic unit Decimal Arithmetic operations.

UNIT V :

THE MEMORY SYSTEM : Basic concepts semiconductor RAM memories. Read-only memories Cache memories performance considerations, Virtual memories secondary storage. Introduction to RAID.

UNIT-VI

INPUT-OUTPUT ORGANIZATION : Peripheral Devices, Input-Output Interface, Asynchronous data transfer Modes of Transfer, Priority Interrupt Direct memory Access, Input –Output Processor (IOP) Serial communication; Introduction to peripheral component, Interconnect (PCI) bus. Introduction to standard serial communication protocols like RS232, USB, IEEE1394.

UNIT VII :

PIPELINE AND VECTOR PROCESSING : Parallel Processing, Pipelining, Arithmetic Pipeline, Instruction Pipeline, RISC Pipeline Vector Processing, Array Processors.

UNIT VIII :

MULTI PROCESSORS : Characteristics or Multiprocessors, Interconnection Structures, Interprocessor Arbitration. InterProcessor Communication and Synchronization Cache Coherance. Shared Memory Multiprocessors.

TEXT BOOKS :

1. Computer Organization – Carl Hamacher, Zvonks Vranesic, SafeaZaky, Vth Edition, McGraw Hill.
2. Computer Systems Architecture – M.Moris Mano, IIIrd Edition, Pearson/PHI

REFERENCES :

1. Computer Organization and Architecture – William Stallings Sixth Edition, Pearson/PHI
2. Structured Computer Organization – Andrew S. Tanenbaum, 4th Edition PHI/Pearson
3. Fundamentals or Computer Organization and Design, - Sivaraama Dandamudi Springer Int. Edition.
4. Computer Architecture a quantitative approach, John L. Hennessy and David A. Patterson, Fourth Edition Elsevier
5. Computer Architecture: Fundamentals and principles of Computer Design, Joseph D. Dumas II, BS Publication.

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CONTROL SYSTEMS

Objective :
In this course it is aimed to introduce to the students the principles and applications of control systems in every day life. The basic concepts of block diagram reduction, time domain analysis solutions to time invariant systems and also deals with the different aspects of stability analysis of systems in frequency domain and time domain.

UNIT – I INTRODUCTION

Concepts of Control Systems- Open Loop and closed loop control systems and their differences- Different examples of control systems- Classification of control systems, Feed-Back Characteristics, Effects of feedback.
Mathematical models – Differential equations, Impulse Response and transfer functions - Translational and Rotational mechanical systems

UNIT II TRANSFER FUNCTION REPRESENTATION
Transfer Function of DC Servo motor - AC Servo motor- Synchro transmitter and Receiver, Block diagram representation of systems considering electrical systems as examples -Block diagram algebra – Representation by Signal flow graph - Reduction using Mason's gain formula.

UNIT-III TIME RESPONSE ANALYSIS

Standard test signals - Time response of first order systems – Characteristic Equation of Feedback control systems, Transient response of second order systems - Time domain specifications – Steady state response - Steady state errors and error constants – Effects of proportional derivative, proportional integral systems.

UNIT – IV STABILITY ANALYSIS IN S-DOMAIN

The concept of stability – Routh's stability criterion – qualitative stability and conditional stability – limitations of Routh's stability
Root Locus Technique:
The root locus concept - construction of root loci-effects of adding poles and zeros to G(s)H(s) on the root loci.
UNIT – V FREQUENCY RESPONSE ANALYSIS

Introduction, Frequency domain specifications-Bode diagrams-Determination of Frequency domain specifications and transfer function from the Bode Diagram-Phase margin and Gain margin-Stability Analysis from Bode Plots.
UNIT – VI STABILITY ANALYSIS IN FREQUENCY DOMAIN
Polar Plots-Nyquist Plots-Stability Analysis.
UNIT – VII CLASSICAL CONTROL DESIGN TECHNIQUES
Compensation techniques – Lag, Lead, Lead-Lag Controllers design in frequency Domain, PID Controllers.

UNIT – VIII State Space Analysis of Continuous Systems
Concepts of state, state variables and state model, derivation of state models from block diagrams, Diagonalization- Solving the Time invariant state Equations- State Transition Matrix and it's Properties – Concepts of Controllability and Observability
TEXT BOOKS:
1. Automatic Control Systems 8th edition– by B. C. Kuo 2003– John wiley and son's.,
2. Control Systems Engineering – by I. J. Nagrath and M. Gopal, New Age International (P) Limited, Publishers, 2nd edition.
REFERENCE BOOKS:
1. Modern Control Engineering – by Katsuhiko Ogata – Prentice Hall of India Pvt. Ltd., 3rd edition, 1998.
2. Control Systems by N.K.Sinha, New Age International (P) Limited Publishers, 3rd Edition, 1998.
3. Control Systems Engg. by NISE 3rd Edition – John wiley
4. " Modelling & Control Of Dynamic Systems" by Narciso F. Macia George J. Thaler, Thomson Publishers.

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ELECTRONIC CIRCUIT ANALYSIS

UNIT I : SINGLE STAGE AMPLIFIERS : Review, Small Signal Analysis of Junction Transistor, Frequency response of Common Emitter Amplifier, Common Base Amplifier, Common Collector Amplifier, JFET Amplifiers, Common Drain (CD) Amplifier, Common Gate Amplifier, Gain Band Width Product.

UNIT II : MULTI STAGE AMPLIFIERS : Multi Stage Amplifiers Methods of Inter Stage Coupling, n – Stage Cascaded Amplifier, Equivalent Circuits, Miller's Theorem, Frequency Effects, Amplifier Analysis, High Input Resistance Transistor Circuits. Cascode – Transistor Configuration, CE-CC Amplifiers, Two Stage RC Coupled JFET amplifier (in Common Source (CS) configuration), Difference Amplifier.

UNIT III : HIGH FREQUENCY TRANSISTOR CIRCUTS : Transistor at High Frequencies, Hybrid-□Common Emitter Tranconductance Model, Determination of Hybrid- □Conductances, Variation of Hybrid Parameters with |IC|, |VCE| and Temperature. The Parameters ¦t, expression for ¦b, Current Gain with Resistance Load, CE Short Circuit Current Gain, Hybrid– □pi) Parameters, Measurement of ¦t, Variation of Hybrid – □Parameters with Voltage, Current and Temperature, Design of High frequency Amplifier.

UNIT IV : POWER AMPLIFIERS : Class A Power Amplifier, Maximum Value of Efficiency of Class A Amplifier, Transformer Coupled Amplifier, Transformer Coupled Audio Amplifier, Push Pull Amplifier, Complimentary Symmetry Circuits (Transformer Less Class B Power Amplifier), Phase Inverters, Class D Operation, Class S Operation, Heat Sinks.

UNIT V : TUNED AMPLIFIERS - I : Single Tuned Capacitive Coupled Amplifier, Tapped Single Tuned Capacitance Coupled Amplifier, Single Tuned Transformer Coupled or Inductively Coupled Amplifier, CE Double Tuned Amplifier, Application of Tuned Amplifiers.

UNIT VI : TUNED AMPLIFIERS - II : Stagger Tuning, Stability Considerations, Tuned Class B and Class C Amplifiers, Wideband Amplifiers, Tuned Amplifiers.

UNIT VII : VOLTAGE REGULATORS : Terminology, Basic Regulator Circuit, Short Circuit Protection, Current Limiting, Specifications of Voltage Regulator Circuits, Voltage Multipliers.

UNIT VIII : SWITCHING AND IC VOLTAGE REGULATORS : IC 723 Voltage Regulators and Three Terminal IC regulators, DC to DC Converter, Switching Regulators, Voltage Multipliers, UPS, SMPS.

TEXT BOOKS :

1. Integrated Electronics – J. Millman and C.C. Halkias, Mc Graw-Hill, 1972.
2. Electronic Devices and Circuits, Theodore F. Bogart Jr., J.S. Beasley and G. Rico, Pearson Edition, 6th Edition, 2004.

REFERENCES :

1. Electronic Devices and Circuits Theory – Robert L. Boylestad and Louis Nashelsky, Pearson/Prentice Hall,9th Edition,2006.
2. Micro Electronic Circuits – Sedra A.S. and K.C. Smith, Oxford University Press, 5th ed.
3. Micro Electronic Circuits: Analysis and Design – M.H. Rashid, Thomson PWS Publ., 1999.
4. Principles of Electronic Circuits – S.G.Burns and P.R.Bond, Galgotia Publications, 2nd Edn.., 1998.
5. Electronic Circuit Analysis and Design – Donald A. Neaman, Mc Graw Hill.
6. Electronic Circuit Analysis – K. Lal Kishore, BS Publications, 2004.

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INDUSTRIAL INSTRUMENTATION

UNIT – I: METROLOGY
Measurement of length – Plainness – Area – Diameter – Roughness – Angle – Comparators – Gauge blocks – Optical Methods of length and distance measurements.

UNIT – II: VELOCITY AND ACCELERATION MEASUREMENT
Relative velocity – Translational and Rotational velocity measurement – Revolution counters and Timers - Magnetic and Photoelectric pulse counting stroboscopic methods - Accelerometers of different types - Gyroscopes.

UNIT – III: FORCE AND TORQUE MEASUREMENT
Force measurement – Different methods –Torque measurement – Dynamometers- Gyroscopic Force and Torque Measurement – Vibrating wire Force transducer

UNIT – IV: PRESSURE MEASUREMENT
Basics of Pressure measurement – Deadweight Gages and Manometers types – Force-Balance and Vibrating Cylinder Transducers – High and Low Pressure measurement – McLeod Gage, Knudsen Gage, Momentum Transfer Gages, Thermal Conductivity Gages, Ionization Gazes, Dual Gage Techniques.

UNIT – V: FLOW MEASUREMENT
Head type, Area type (Rota meter), electromagnetic type, Positive displacement type, mass flow meter, ultrasonic type ,vertex shedding type, Hotwire anemometer type.. Laser Doppler Veloci-meter.

UNIT – VI: DENSITY MEASUREMENT
Volume Flow meter Plus Density measurement – Strain Gauge load cell method – Buoyancy method - Air pressure balance method – Gamma ray method – Vibrating probe method. Direct Mass Flow meters.

UNIT – VII: RADIATION MEASUREMENT
Radiation Fundamentals. Radiation Detectors. Radiation Thermometers. Optical Pyrometers.

UNIT – VIII: OTHER MEASUREMENTS
Sound-Level Meter. Microphones. Time, Frequency, and Phase-Angle measurement. Liquid Level. Humidity. Chemical Composition. Particle Instruments and Clean-Room

TEXT BOOKS:
1. Measurement Systems – Applications and Design – by Doeblin E.O., 4/e, McGraw Hill International, 1990.
2. Principles of Industrial Instrumentation – Patranabis D. TMH. End edition 1997

REFERENCES:
1. Process Instruments and Control Handbook – by Considine D.M., 4/e, McGraw Hill International, 1993.
2. Mechanical and Industrial Measurements – by Jain R.K., Khanna Publishers, 1986.
3. Instrument Technology, vol. I – by Jones E.B., Butterworths, 1981.

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PROCESS CONTROL INSTRUMENTATION

UNIT – I:
PROCESS DYNAMICS
Process variables – Load variables – Dynamics of simple pressure, flow level and temperature process – interacting and non-interacting systems – continuous and batch process – self-regulation – Servo and Regulator operation - problems.

UNIT – II:
CONTROL ACTIONS AND CONTROLLERS
Basic control actions – characteristics of two position, three position, Proportional, Single speed floating, Integral and Derivative control modes – PI, PD, PID control modes – Problems –

UNIT – III:
TYPES OF CONTROLLERS
Pneumatic, Hydraulic and Electronic Controllers to realize various control actions.

UNIT – IV:
CONTROLLER SETTINGS
Evaluation criteria – 1/4th decay ratio, IEA, ISE, ITAE - determination of optimum settings for mathematically described process using time response and frequency response.

UNIT – V:
TUNING OF CONTROLLERS
Tuning process curve reaction method – continuous oscillation method – damped oscillation method – problems.

UNIT – VI:
FINAL CONTROL ELEMENTS
I/P Converter , P/I converter - pneumatic, electric and hydraulic actuators – valve positioner

UNIT – VII:
CONTROL VALVES
Control valves – characteristic of control valves – valve body – Globe, Butterfly, diaphragm, Ball valves – Control valve sizing – Cavitations, flashing - problems.

UNIT – VIII:
MULTILOOP CONTROL SYSTEM
Feed forward control – Ratio control – Cascade control – Split range – Multivariable control and examples from distillation column and Boiler system.

TEXT BOOKS :
1. Chemical Process Control : An introduction to Theory and Practice – by Stephanopoulos, Prentice Hall, New Delhi, 1999.
2. Process Control – Harriott P. , TMH, 1991

REFERENCES:
1. Process Control, Third Edition – Liptak B.G., Chilton Book Company, Pennsylvania, 1995
2. Process control – by Pollard A., Heinemann Educational Books, London, 1971.
3. Automatic Process Control – by Eckman D.P. , Wiley Eastern Ltd., New Delhi, 1993.
4. Process Control – by Patranabis.
5. Process System Analysis and Control – Coughanowr, McGraw Hill, Singapore, 1991

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PROCESS CONTROL LAB

(Minimum 10 experiments should be conducted)

1. Flow level control unit.
2. Temperature level control unit.
3. Servo and regulator operation.
4. Realization of control actions: Pneumatic controllers. Hydraulic controllers.
5. Electronic controllers.
6. Process tuning – Process reaction curve method.
7. Process tuning – continuous and damped oscillation method.
8. Operation of flow loop in plant.
9. Input convertor – Pneumatic actuator.
10. Input convertor – Hydraulic actuator.
11. Control valve characteristics (Different types).
12. Multi loop control systems – Ratio Control.
13. Multi loop control systems – Cascade Control.

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ADVANCED ENGLISH COMMUNICATION SKILLS LAB

1. Introduction

The introduction of the English Language Lab is considered essential at 3rd year level. At this stage the students need to prepare themselves for their careers which may require them to listen to, read, speak and write in English both for their professional and interpersonal communication in the globalised context.

The proposed course should be an integrated theory and lab course to enable students to use 'good' English and perform the following:

- Gather ideas and information, to organise ideas relevantly and coherently.
- Engage in debates.
- Participate in group discussions.
- Face interviews.
- Write project/research reports/technical reports.
- Make oral presentations.
- Write formal letters.
- Transfer information from non-verbal to verbal texts and vice versa.
- To take part in social and professional communication.

2. Objectives:

This Lab focuses on using computer-aided multimedia instruction for language development to meet the following targets:

- To improve the students' fluency in English, through a well-developed vocabulary and enable them to listen to English spoken at normal conversational speed by educated English speakers and respond appropriately in different socio-cultural and professional contexts.
- Further, they would be required to communicate their ideas relevantly and coherently in writing.

3. Syllabus:

The following course content is prescribed for the Advanced Communication Skills Lab:

- Functional English - starting a conversation – responding appropriately and relevantly – using the right body language – role play in different situations.
- Vocabulary building – synonyms and antonyms, word roots, one-word substitutes, prefixes and suffixes, study of word origin, analogy, idioms and phrases.
- Group Discussion – dynamics of group discussion , intervention, summarizing, modulation of voice, body language, relevance, fluency and coherence.
- Interview Skills – concept and process, pre-interview planning, opening strategies, answering strategies, interview through tele and video-conferencing.
- Resume' writing – structure and presentation, planning, defining the career objective, projecting ones strengths and skill-sets, summary, formats and styles, letter-writing.
- Reading comprehension – reading for facts, guessing meanings from context, scanning, skimming, inferring meaning, critical reading.
- Technical Report writing – Types of formats and styles, subject matter – organization, clarity, coherence and style, planning, data-collection, tools, analysis.

4. Minimum Requirement:

The English Language Lab shall have two parts:

i) **The Computer aided Language Lab** for 60 students with 60 systems, one master console, LAN facility and English language software for self- study by learners.

ii) **The Communication Skills Lab** with movable chairs and audio-visual aids with a P.A System, a T. V., a digital stereo –audio & video system and camcorder etc.

System Requirement (Hardware component):

Computer network with Lan with minimum 60 multimedia systems with the following specifications:

i) P – IV Processor
   a) Speed – 2.8 GHZ
   b) RAM – 512 MB Minimum
   c) Hard Disk – 80 GB

ii) Headphones of High quality

5. Suggested Software:

The software consisting of the prescribed topics elaborated above should be procured and used.

Suggested Software:

- **Clarity Pronunciation Power** – part II
- **Oxford Advanced Learner's Compass**, 7th Edition
- **DELTA's key to the Next Generation TOEFL Test: Advanced Skill Practice.**
- **Lingua TOEFL CBT Insider**, by Dreamtech
- **TOEFL & GRE**(KAPLAN, AARCO & BARRONS, USA, Cracking GRE by CLIFFS)
- **The following software from 'train2success.com'**
  - **Preparing for being Interviewed,**
  - **Positive Thinking,**
  - **Interviewing Skills,**
  - **Telephone Skills,**
  - **Time Management**
  - **Team Building,**
  - **Decision making**

- **English in Mind**, Herbert Puchta and Jeff Stranks with Meredith Levy, Cambridge

6. Books Recommended:

1. **Effective Technical Communication**, M. Ashraf Rizvi, Tata Mc. Graw-Hill Publishing Company Ltd.
2. **A Course in English communication** by Madhavi Apte, Prentice-Hall of India, 2007.
3. **Communication Skills** by Leena Sen, Prentice-Hall of India, 2005.
4. **Academic Writing- A Practical guide for students** by Stephen Bailey, Rontledge Falmer, London & New York, 2004.
5. **English Language Communication : A Reader cum Lab Manual** Dr A Ramakrishna Rao, Dr G Natanam & Prof SA Sankaranarayanan, Anuradha Publications, Chennai
6. **Body Language- Your Success Mantra** by Dr. Shalini Verma, S. Chand, 2006.
7. **DELTA's key to the Next Generation TOEFL Test: Advanced Skill Practice**, New Age International (P) Ltd., Publishers, New Delhi.
8. Books on **TOEFL/GRE/GMAT/CAT** by Barron's/cup
9. **IELTS series with CDs** by Cambridge University Press.
10. **Technical Report Writing Today** by Daniel G. Riordan & Steven E. Pauley, Biztantra Publishers, 2005.
11. **Basic Communication Skills for Technology** by Andra J. Rutherford, 2nd Edition, Pearson Education, 2007.
12. **Communication Skills for Engineers** by Sunita Mishra & C. Muralikrishna, Pearson Education, 2007.
13. **Objective English** by Edgar Thorpe & Showick Thorpe, 2nd edition, Pearson Education, 2007.
14. **Cambridge Preparation for the TOEFL** Test by Jolene Gear & Robert Gear, 4th Edition.
15. **Technical Communication** by Meenakshi Raman & Sangeeta Sharma, Oxford University Press.

DISTRIBUTION AND WEIGHTAGE OF MARKS:

Advanced Communication Skills Lab Practicals*:*

1. The practical examinations for the English Language Laboratory practice shall be conducted as per the University norms prescribed for the core engineering practical sessions.
2. For the English Language lab sessions, there shall be a continuous evaluation during the year for 25 sessional marks and 50 End Examination marks. Of the 25 marks, 15 marks shall be awarded for day-to-day work and 10 marks to be awarded by conducting Internal Lab Test(s). The End Examination shall be conducted by the teacher concerned with the help of another member of the staff of the same department of the same institution.